ASSIGNMENT OF *LYCODES MICROCEPHALUM* JENSEN, 1902 TO *PACHYCARA* ZUGMAYER, 1911 (TELEOSTEI: ZOARCIDAE)

by

P.R. MØLLER (1) & M.E. ANDERSON (2)

ABSTRACT. - *Lycodes microcephalum* Jensen, 1902 is redescribed and assigned to the genus *Pachycara* Zugmayer, 1911. It is distinguished from its congeners mainly in its few vertebrae, lateral line and cephalic pore pattern. It is the 17th species of *Pachycara* and extends the known distribution in the Atlantic north to the Reykjanes Ridge.

RÉSUMÉ. - Attribution de *Lycodes microcephalum* Jensen, 1902 au genre *Pachycara* Zugmayer, 1911 (Teleostei: Zoarcidae).

Lycodes microcephalum Jensen, 1902 est redécrite et attribuée au genre *Pachycara* Zugmayer, 1911. Cette espèce se distingue des autres espèces du genre principalement par son plus faible nombre de vertèbres, la disposition de sa ligne latérale et des pores céphaliques. Cette espèce est la 17ème du genre *Pachycara* et étend la distribution géographique du genre dans l'Atlantique nord jusqu'à la ride Reykjanes.

Key words. - Zoarcidae - *Pachycara* - *Lycodes* - ANE - Reykjanes Ridge - Ingolf-Expedition.

During the Danish Ingolf-Expedition in 1895-96 a single juvenile specimen of a small undescribed zoarcid fish was caught on the Reykjanes Ridge south-west of Iceland. It was described by A.S. Jensen as *Lycodes microcephalus* in 1902 and illustrated in his comprehensive work in 1904. The diagnosis was based on the slender body (8% TL), small head (17.3% TL), preanal length (38.3% SL), coloration (uniform yellowish white, without bands or spots), an assumed medio-lateral lateral line, scales on body and vertical fins and 15 pectoral fin rays.

Jensen regarded the diagnosis as preliminary since it was based on a single juvenile specimen. In his 1904 paper he concluded that « This new species does not seem to stand anyway near any of the other *Lycodes* ». Today, more than 100 years later, the small Ingolf specimen is still the only known specimen of the species.

In the present paper the specimen is redescribed and transferred to the genus *Pachycara* Zugmayer, 1911. This genus was reviewed by Anderson (1989) and a more recent key to the genus was provided by Anderson and Bluhm (1996). The genus is currently represented by 16 species, of which 13 have been described within the last decade. They are found in the Pacific (8 species), Atlantic (4 species), Pacific and Atlantic (1), Antarctic (2) and Indian Ocean (1). *P. microcephalum* is the 17th species of the genus, and extends the hitherto known northern distribution range of the genus from off Ireland

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(1) Zoological Museum, University of Copenhagen, Universitetsparken 15, DK-2100 Copenhagen Ø, DENMARK. [pdrmoller@zmuc.ku.dk]

(2) J.L.B. Smith Institute of Ichthyology, Somerset Street, Private Bag 1015, Grahamstown, 6140 SOUTH AFRICA.

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(51°14'N, 13°16'W) (*P. crassiceps* (Roule, 1916)) to South West of Iceland (60°37'N, 27°52'W) (Anderson, 1989).

MATERIALS AND METHODS

Measurements were made with the dial callipers to nearest 0.1 mm. Definitions of character states and measurements follow those of Anderson (1994). Abbreviations: SL, standard length; ZMUC, Zoological Museum University of Copenhagen.

PACHYCARA MICROCEPHALUM (JENSEN, 1902)

(Fig. 1A-B)

Lycodes microcephalus Jensen, 1902: 206-207.

Jensen, 1904: 53-55, figs. 6-8, Tab. 1, fig. 1. Anderson, 1994: 118. Andriashev, 1973: 544. Andriashev, 1986: 1141, text fig. Jónsson, 1992: 407-408, text fig. Nielsen, 1974: 77.

Pachycara microcephalus: Møller, 1996: 76-77.

Material examined

Holotype. - ZMUC 78, female (77 mm SL), SW of Iceland, Reykjanes Ridge (60°37'N, 27°52'W), R/V "INGOLF" sta. 78, 1,505 m, bottom temp. 4.5°C, 13 June 1896.

Diagnosis

A species of *Pachycara* as defined by Anderson (1989, 1994), with pelvic fin rays 2; vertebrae 22+71 = 93; dorsal fin origin associated with vertebra 4; branchiostegal rays 6; suborbital pores 5; gill rakers 1+8; scales present; lateral line medio-lateral, originating just posterior to posteriormost postorbital pore; pseudobranch present.

Counts and measurements

Vertebrae 22+71 = 93; D 88; A 73; C 2+4+4; P 15; pelv. 2; premaxillary teeth 11+2-12+1; vomerine teeth 4; palatine teeth 6-7; gill rakers 1+8; branchiostegal rays 6; pseudobranch filaments 3. Following measurements in percent SL (77 mm): head length 17.5; head width 8.5; head depth 8.7; pectoral fin length 10.6; predorsal length 19.8; preanal length 39.1; body height at anal origin 7.7; gill slit length 5.7; caudal fin length 3.3. Following measurements in percent HL (13.5 mm): head width 37.3; head depth 38.0; upper jaw length 27.3; pectoral fin length 46.5; snout length 19.9; eye diameter 15.9; gill slit length 25.0; bony interorbital width 6.6; interpupillary width 14.5; pelvic fin length 20.5. Pectoral base/length ratio 39.

Description

Head ovoid, relatively long compared to congeners, gently tapering to steeply angular snout. Small, embedded cycloid scales extending anteriorad to a point 29% SL from tip of snout, about 14 scale rows in a straight line between anal fin origin and dorsal fin; scales absent on head, nape, in front of dorsal fin, pectoral base and axil, abdomen and vertical fins, except posterior part of bases; squamation probably not fully developed

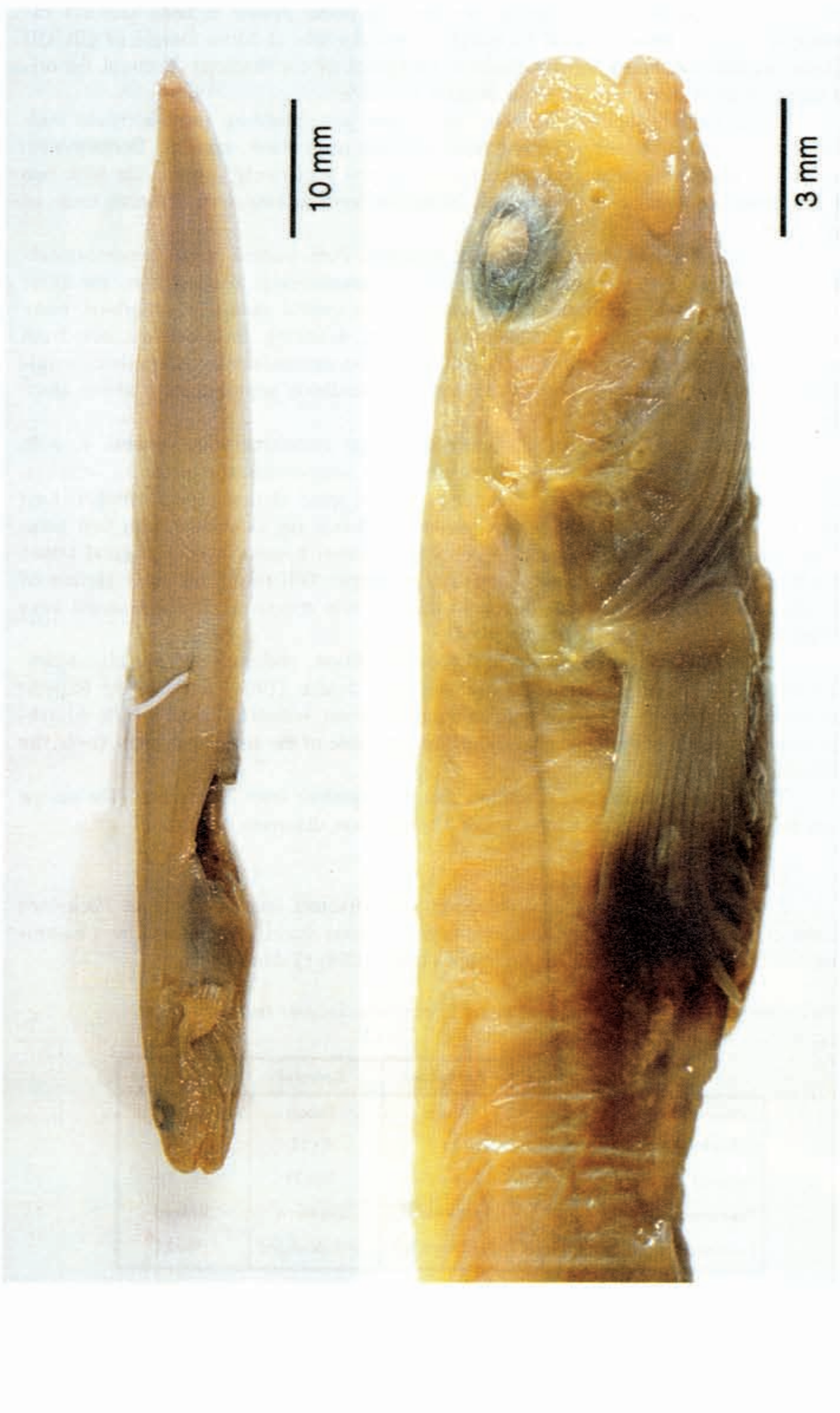

Fig. 1. - *Pachycara microcephalum*, ZMUC 78, 77 mm SL, SW of Iceland. **A**: Lateral view of left side; **B**: Head profile of right side. Photo Geert Brovad (ZMUC).

in this juvenile specimen. Eye circular, not entering dorsal profile of head. Gill slit extending ventrally to lower pectoral fin margin. Opercular lobe at dorsal margin of gill slit oblique, angular, extending forward about to mid-point of eye diameter. Pectoral fin origin below body midline, tips exserted, longest rays 5-9.

Mouth slightly oblique, subterminal. Upper jaw extending posteriorly to midpoint of eye. Nasal tube long, reaching upper lip. Jaw teeth small, conical. Dentary with two rows of teeth anteriorly grading into a single row posteriorly; premaxilla with two anterior rows and a single posterior row. Vomerine teeth in two rows. Palatine teeth in single row.

Cephalic lateralis pores moderate, rounded. Pore pattern with 2 postorbitals (numbers 1 and 4). Two pairs of nasal pores, one set anteromesial to nasal tube, the other posteromesially. Five suborbital pores arising from ventral ramus of suborbital bone chain (formula 5+0). Preoperculomandibular pores 8, 4 arising from dentary, one from anguloarticular and 3 from preopercle. Body lateral line medio-lateral, incomplete, originating behind last postorbital pore, disappearing on midbody approximately above anus. Ventral lateral line not seen.

Vertebral centra symmetrical. Dorsal fin origin associated with vertebra 4, with no free supraneurals. Anal fin origin associated with antepenultimate precaudal vertebra, with 2 anal pterygiophores inserted anterior to haemal spine of first caudal vertebra. Last dorsal ray associated with second preural vertebra, last anal ray associated with first preural vertebra. Caudal fin with 2 epural, 4 upper and 4 lower hypural rays. Epineural bones extending from third to penultimate precaudal vertebrae. Gill rakers on outer surface of first gill arch 1+8, triangular, not furcate in this juvenile specimen. Branchiostegal rays 6. Pseudobranch filaments short, nub-like.

Colour uniformly pale brown in present condition, abdomen and eye blue-black. Peritoneum dark brown, orobranchial chamber pale. Jensen (1904) refers to the Expedition journal concerning the fresh pigmentation: « almost without colour, a little bluish-grey in tone; the top of the head slightly reddish; the side of the trunk and belly (over the peritoneum) dark blue ».

The specimen is in good condition, but the digestive tract is missing. The unripe ovary is still present, length 6 mm, width 1 mm, ovum diameter 0.25 mm.

Generic assignment

P. microcephalum has a combination of characters that places it in *Pachycara* Zugmayer, 1911 a genus without autapomorphic character states, but defined by a combination of characters as defined by Anderson (1989, 1994) (Table I).

Table I. - Informative characters for separation of *Pachycara*, *Lycodes* and *Lycenchelys*.

	Pachycara	*Lycodes*	*Lycenchelys*
Submental crests	Absent	Present	Absent
Suborbital head pores	5 - 7	6 - 11	6 - 10
Pectoral fin rays	14 - 19	16 - 24	13 - 21
Parasphenoid wing	Reduced	Unreduced	Reduced
Palatopterygoid bone series	Well developed	Well developed	Week

It differs from *Lycodes* Reinhardt, 1831 in the lack of submental crests, subterminal mouth, smaller head, only five suborbital and two postorbital pores and the low number of pectoral fin rays.

The relatively enlarged head pores reflect those of the genus *Lycenchelys* Gill, 1884, with which juveniles of *Pachycara* are often confused. However, it is distinguished from that genus by its fewer suborbital pores (5 versus 6-10 in *Lycenchelys*), small rounded head and lower vertebral counts (although there is overlap with a few *Lycenchelys* species) (Anderson, 1994) (Table I).

Comparison with congeners

The specimen appears to be close to *P. rimae* Anderson, 1989 in a few notable characters, chiefly its vertebrae (26+67 = 93 in *P. rimae*), pectoral fin rays (15 in both), pelvic fin rays (2 in both) and gill rakers (3+7 in *P. rimae*). However, these may be convergent states as *P. rimae* is an eastern Pacific species with the following significant differences with *P. microcephalum*: 1) lateral line origin behind pectoral fin (behind last postorbital pore in *P. microcephalum*); 2) branchiostegal rays 4-5 (6 in *P. microcephalum*); 3) pelvic fins nub-like (pelvic fins not appreciably reduced in *P. microcephalum*); 4) dorsal fin origin associated with vertebra 8 (vertebra 4 in *P. microcephalum*; and 5) pseudobranch absent (present in *P. microcephalum*).

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